



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,498	07/25/2003	Gregory A. Steinlage	15-XT-6176 (GEMS-A 0130)	1497
27256	7590	10/18/2005	EXAMINER	
ARTZ & ARTZ, P.C. 28333 TELEGRAPH RD. SUITE 250 SOUTHFIELD, MI 48034			ARTMAN, THOMAS R	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/604,498

Applicant(s)

STEINLAGE ET AL.

Examiner

Thomas R. Artman

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18-20 and 22-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10, 13 and 20 is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-16, 18, 19 and 22-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 11, 12, 14-16, 18, 19 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klostermann (US 5,056,126) in view of Takahata (US 6,838,798 B2).

Regarding claims 1-4, 6-9, 12, 14-16, 18, 19, 23 and 24, Klostermann discloses an imaging X-ray tube rotor assembly and a method of producing an imaging X-ray tube rotor assembly (Figs. 4 and 5), including the formation of a rotor core at least partially from a non-corrosive material having at least 12% chromium (stainless steel portion 71) and having a plurality of slots integrally formed in the rotor core and having bars of a non-magnetic, highly-conductive material placed in the slots (copper bars of squirrel cage portion 72), and further having a shaft 66 integrally formed with the rotor core.

Further regarding claims 1, 16 and 18, Klostermann does not disclose the practice of forming a sleeve produced from a non-magnetic, non-sprayed on, non-corrosive material directly over and in contact with, or rotational with, the rotor core.

Takahata teaches the practice of using such a sleeve, particularly a stainless steel (at least 12% chromium) protective sleeve 19 around a rotor core that has the high tensile strength to keep the rotor core from breaking at high rotational speeds, reduce corrosion (a primary function of stainless steel) and to cancel out harmful magnetic flux components for reducing noise and vibration (col.3, line 51, through col.4, line 6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the rotor core assembly of Klostermann to have a non-magnetic, non-sprayed on, non-corrosive material directly over and in contact with the rotor core in order to improve high-speed strength, protect, and reduce noise and vibrations as taught by Takahata.

With respect to claims 5, 11, 25 and 26, Klostermann and Takahata do not specifically disclose oxidizing an exterior surface of the rotor assembly, or more specifically, the exterior surface of the sleeve. However, the surface becomes naturally oxidized upon exposure to air, where the chromium in the stainless steel oxidizes with air, thus forming a protected layer that defines why stainless steel is stainless, or corrosion resistant.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for Klostermann and Takahata to oxidize the outer surface of the stainless steel sleeve to improve the corrosion resistance of the sleeve.

Further regarding claim 26, oxidizing via a "greening effect" is essentially inherent, since the oxidation of stainless steel creates a green color due to the oxidation (reaction with oxygen) of the chromium.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahata in view of Warren (US 6,390,875 B1).

Takahata discloses the method of forming a rotor core 17 and forming a sleeve 19 made of a non-sprayed and non-corrosive material (stainless steel, col.3, line 51, through col.4, line 6).

Takahata does not specifically disclose the practice of inducing oxidation of the exterior surface of the sleeve by applying heat.

Warren specifically teaches the practice of applying heat to corrosion-resistant materials (steel containing Chromium, a.k.a., stainless steel) in order to purposely oxidize the surface, forming the oxide of Chromium, in order to improve the heat dissipation/absorption properties of the surfaces of various components within an X-ray vacuum tube for the purpose of efficiently removing heat from the anode and other portions that get hot during X-ray production (process: col.2, line 56, through col.3, line 12; purpose: col.4, lines 39-62, particularly lines 59-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Takahata to induce oxidation of the outer surface of the sleeve by applying heat such that the thermal emissivity is improved for greater thermal cooling in a vacuum tube environment, as taught by Warren.

#### ***Allowable Subject Matter***

Claims 10 and 13 are allowed for reasons as stated in the previous Office action, dated November 17<sup>th</sup>, 2004.

Claim 20 remains allowable for incorporating the subject matter of the base claim and any intervening claims, and for the reasons as stated in the previous Office action cited above.

*Response to Arguments*

Applicant's arguments with respect to claims 16 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments regarding claims 1 and 18 have been fully considered but they are not persuasive. Applicants argue that the disclosure of Klostermann does not teach at least one slot integrally formed with the rotor core, a rotor core made at least partially from a corrosion resistant material, and that neither Klostermann nor Takahata teach a shaft that is integrally formed with the rotor core. The examiner respectfully disagrees.

First, it is the examiner's position that elements 71 and 72 together form the complete rotor core of Klostermann. The items are concentrically located within the stator windings, where item 71 is made of stainless steel, and 72 has the integrally formed slots for the copper bars (squirrel cage design), forming the magnetically active portion of the rotor core. Item 71 is needed for the magnetically active portion 72 to function as a rotor, thus holding item 72 in the proper position with respect to the stator windings, and connects to the shaft in order to perform the rotor core's function of rotating the shaft.

Furthermore, items 71 and 72 are integrally formed. The only non-mathematical definition of "integral" in Merriam-Webster's Collegiate Dictionary, 10<sup>th</sup>, ed., is definition "1c: formed as a unit with another part," and the example provided is "a seat with ~ headrest." (p.606). The definition implies that the "unit" has multiple parts, and does not suggest or imply that the "integrally formed" parts are cast or molded into a single uniform piece, unlike Applicants' assertion at the bottom of pp.9 of the Response. The definition of a "unit" is "3c: a



Art Unit: 2882

piece or complex of apparatus serving to perform one particular function” (p.1288). In this case, items 71 and 72 form a unit to perform the function of rotating the anode.

Second, based upon the above definitions of the terms “integral” and “unit,” it is the examiner’s position that the shaft of Klostermann (including items 62, 66 and 68) is integrally formed with the rotor core (71, 72). Furthermore, using the above definition, the shaft of Takahata is integrally formed with the rotor core once the shaft is inserted into the hole in the rotor core. In both cases, the rotor core forms a unit with another part, in this case, the shaft, and where the “unit” is performing the particular function of rotating the anode.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Suzuki (US 6,856,065 B2) teaches the practice of using non-corrosive materials, such as Ni-Chrome steel, for rotor cores to resist extreme environments as well as reduce eddy currents, where the eddy currents inhibit optimal electric motor operation. Yoshino (US 6,906,448 B2) teaches the practice of molding or casting a single piece that forms a portion of the rotor core and the shaft (Fig.5, items 55 and 55a). Kliman (US 6,274,962 B1) teaches the practice of “baking” an aluminum sleeve for oxidation for corrosion resistance.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2882

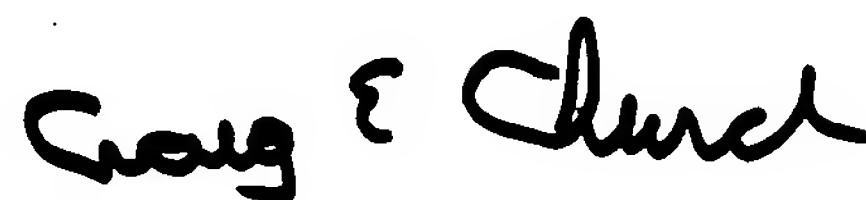
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R. Artman whose telephone number is (571) 272-2485. The examiner can normally be reached on 9am - 5:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas R. Artman  
Patent Examiner



Craig E. Church  
Primary Examiner